22 OCT 2002

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UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
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WASHINGTON, D.C. 20231
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Joseph S. Tripoli - Patent Operations
THOMSON MULTIMEDIA LICENSING, INC.
PO Box 5312
Princeton, New Jersey 08540

In re Application of
ESKICIOGLU, Ahmet, Mursit, et al.
U.S. Application No.: 09/581,064
PCT No.: PCT/US98/26069
International Filing Date: 09 December 1998
Priority Date: 10 December 1997
Attorney's Docket No.: RCA 88783
For: CONDITIONAL ACCESS SYSTEM FOR DIGITAL RECEIVERS

DECISION ON RENEWED PETITION UNDER 37 CFR 1.47(a)

In a decision mailed by this Office on 23 July 2002, applicants' petition under 37 CFR 1.47(a) was dismissed for failure to satisfy all the requirements of a grantable petition. The petition had sought acceptance of the application without the signature of co-inventor/applicant Mehmet Kemal OZKAN.

On 07 October 2002, applicants filed the Renewed Petition considered herein, accompanied by a declaration executed by Mehmet Kemal OZKAN. Based on this submission, applicants have now submitted a declaration executed by all three named co-inventors and which is in compliance with 37 CFR 1.497.

Based on the submission of a fully executed declaration, applicants' petition under 37 CFR 1.47(a) is now **MOOT**.

Applicants have now submitted all the requirements of 35 U.S.C. 371.

This application is being forwarded to the National Stage Processing Branch of the Office of PCT Operations for further processing. The 35 U.S.C. 371 date is **07 October 2002**.

Boris Milef
PCT Legal Examiner
PCT Legal Office

RMR/BM:rmr

Richard M. Ross
PCT Petitions Attorney
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EXP. MAIL: EL498034466US

RCA88783

09/581064

Rec'd PCT/PTO 08 JUN 2000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Ahmet Mursit Eskicioglu et al.

Int'l. Appl. No. : PCT/US98/26029

Int'l. Filing No : 09 December 1998 (09.12.98)

For : CONDITIONAL ACCESS SYSTEM FOR DIGITAL RECEIVERS

#5/Pr Amdt A

PRELIMINARY AMENDMENT

Honorable Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

In the US national phase application of PCT/US98/26029 filed herewith, please enter the following amendments:

Please amend the claims as follows:

In the Claims

1. (AMENDED) A method for managing access to a signal representative of an event of a service provider, said method comprising:

(a) receiving said signal in a smart card, said signal being scrambled using a scrambling key;

A1

(b) receiving, in said smart card, data representative of a first seed value; characterized in that

(c) generating said scrambling key using said first seed value **received in said smart card** and a second seed value, said second seed value being **permanently stored** [pre-stored] in said smart card; and

(d) descrambling**, in said smart card,** said signal using said generated scrambling key to provide a descrambled signal.

A2

5. (AMENDED) [In combination in a] **A** system for managing access between a service provider and a device having a smart card coupled thereto, said device performing the steps of:

(a) receiving from the service provider a signal representative of an event, said signal being scrambled using a scrambling key;

(b) receiving from the service provider data representative of a first seed value, said first seed value being selected from a Euclidean plane;

characterized in that

(c) coupling said scrambled signal and said first seed value, **both received from the service provider,** to said smart card, said smart card having a means for access control processing; said access control processing means comprising means for generating said scrambling key by calculating the Y-intercept of a line on said Euclidean plane by said first seed value and a second seed value **which is permanently stored** [, said second seed value being pre-stored] in said smart card and means for descrambling, **within said smart card,** said signal using said generated scrambling key to generate a descrambled signal; and

(d) receiving from said smart card said descrambled signal.

6. (AMENDED) The **system** [combination] of Claim 5 wherein the device is a set-top box.

7. (AMENDED) The **system** [combination] of Claim 5 wherein the device is a digital television.

REMARKS

No fee is believed to been incurred by virtue of this amendment. However, if a fee is incurred on the basis of this amendment, please charge such fee against deposit account 07-0832.

Respectfully Submitted,
Ahmet Mursit Eskicioglu et al.

By: _____
David T. Shoneman, Attorney
Registration No. 39,371
(609) 734-9875

THOMSON multimedia Licensing Inc.
PO Box 5312, 2 Independence Way
Princeton, NJ 08543-5312

527 Rec'd PCT/PTO 10 NOV 2000

Express Mail Label: EL694405034US

PATENT COOPERATION TREATY
IN THE UNITED STATES RECEIVING OFFICE (RO/US)

Applicant : AHMET MURSIT ESKICIOGLU, MEHMET KEMAL OZKAN, BILLY WESLEY BEYERS JR.
Filed : Herewith
For : CONDITIONAL ACCESS SYSTEM FOR DIGITAL RECEIVERS
Int'l PCT No. PCT/US98/26069
Int'l Filing Date: 09 December 1998

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Group 2100

PETITION UNDER 37 C.F.R. 1.47(a)
ONE INVENTOR NOT AVAILABLE

Hon. Commissioner for Patents
Box PCT
Washington, D.C. 20231
Attn.: International Division, Legal Staff

RECEIVED
07 JUN 2001
Legal Staff
International Division

Sir:

Applicants hereby petition the United States Patent and Trademark Office under 37 C.F.R. 1.47(a) to accept the above-identified national stage application without an executed Declaration from one of the three named Inventors.

This Petition is submitted to advise that the Agent has been unable to obtain the signature of Mr. Mehmet Kemal Ozkan (one of the Applicant's for the above-identified application) on the PCT Assignment and the PCT Declaration forms in the name of the assignee, THOMSON LICENSING S.A.

Please charge the required fee of one hundred thirty dollars ($130.00) for the petition, under 37 C.F.R. 1.47(b), pursuant to 37 CFR 1.17(i) to Deposit Account 07-0832.

In response to the Notice of Missing Requirements Under 35 U.S.C. 371 dated 24 July, 2000, no paper number, in the subject patent application and filed herewith, for which a response is due on November 24, 2000, the following petition and exhibits are submitted in support of Applicants claim that the Inventor is not available.

Applicant submits that in view of the fact that this Petition and the response to the Notice of Missing Requirements is sent via Express Mailing, the authorization to

charge the Deposit Account for the fee for filing of this Petition and the response to the Notice of Missing Requirements is timely.

In support of this petition, the following exhibits are enclosed:

Included are copies of the "Combined Declaration for Patent Application and Power of Attorney" and copies of Assignment for this PCT International Application as executed by Applicants, Ahmet Mursit Eskicioglu and Billy Wesley Beyers Jr.. As required by 37 C.F.R. 1.47(b) the Declaration states the full name, last known residence, last known post office address and citizenship of the missing Inventor **(Exhibit B)**.

Applicants have attached a Declaration (**Exhibit A**) executed by Ms. Davida Fornarotto, Paralegal Administrative Assistant, Thomson multimedia Licensing Inc. Ms. Fornarotto is entrusted with handling PCT Applications for Thomson multimedia Licensing Inc. and obtaining signatures from Inventors on all necessary documents.

As required by 37 C.F.R. 1.47(b) and MPEP section 409.03(b)(C), **Exhibit A** is submitted as proof that diligent effort was made to locate the Inventor and the Inventor could not be found. The efforts of Ms. Fornarotto to locate the inventor are stated in the Declaration and occurred as follows:

On March 4, 1999, Ms. Fornarotto had sent an electronic e-mail to the inventor, Mr. Mehmet Kemal Ozkan, to verify his home address in Turkey. On March 5, 1999, the inventor sent an electronic e-mail answering Ms. Fornarotto and confirming his address. On March 5, 1999, a letter was sent by courier to stated address, the last known address of the Inventor. The letter was sent via DHL airway bill no. 8879654851 and included a copy of the application along with a PCT Assignment to Thomson Consumer Electronics, Inc. and Power of Attorney, for signature by the Inventor for filing in the United States. A copy of DHL airway bill no. 8879654851 along with the letter to Mr. Ozkan and also copies of the electronic e-mail messages are attached as **Exhibit C**.

On March 24, 1999, Ms. Fornarotto sent an electronic e-mail once again to the Inventor requesting the signed formal papers. On March 25, 1999, the Inventor replied that he would be sending them to her very soon. On March 31, 1999, Ms. Fornarotto sent another electronic e-mail requesting the signed formal papers. The

last communication or correspondence Ms. Fornarotto received was an electronic e-mail message from the Inventor on Aril 5, 1999, stating that the inventor was sending the documents with someone travelling to the U.S. Ms. Fornarotto never received the signed formal papers. Copies of the e-mails are included as **Exhibit D**.

On November 12, 1999, Ms. Fornarotto sent copies of formal papers for several applications to Mr. Ozkan via DHL, Airwaybill No. 7786866555, and the response was that Mr. Ozkan was unknown at the address on the airwaybill no. (his last known address), see DHL letter of April 6, 2000 - **Exhibit E**.

On November 22, 1999, Ms. Fornarotto sent an e-mail to Mr. William Lagoni, Intellectual Property Administrator at the main office for Thomson Consumer Electronics, in Indianapolis. Mr. Lagoni is the liaison between the Intellectual Property Legal Office in Princeton, N.J. and the main office in Indianapolis, aiding our office in locating past and present employees. This e-mail requested a last known address for Mr. Ozkan. On November 22, 1999, Mr. Lagoni responded via e-mail including the last known address and contact information for Mr. Ozkan. Mr. Lagoni also stated that the e-mail address had worked the last time he tried it and suggested that Ms. Fornarotto e-mail Mr. Ozkan. Ms. Fornarotto sent an e-mail to Mr. Ozkan using the supplied e-mail address on November 22, 1999 requesting an updated address to which the copy of the application along with a PCT and Power of Attorney could be sent. A copy of these e-mails are attached as **Exhibit F.**

On December 1, 1999, Mr. Lagoni e-mailed Ms. Fornarotto asking if a response was received from Mr. Ozkan. Ms. Fornarotto responded that no response was received and asked what further could be done to reach Mr. Ozkan (**Exhibit G**).

On December 3, 1999, Ms. Fornarotto wrote to Mr. Lagoni a second time informing him that no response was received from Mr. Ozkan. Mr. Lagoni responded in a return e-mail dated December 4, 1999 informing Ms. Fornarotto that he also sent an e-mail to Mr. Ozkan and had not received a reply. A copy of these e-mails are attached to the petition as **Exhibit H**.

On December 7, 1999, Mr. Lagoni indicated to Ms. Fornarotto that he had sent two e-mails to Mr. Ozkan, each of which had been returned as undeliverable. Ms. Fornarotto responded by mentioning a discussion with her supervisor in which it was decided that a petition under 37 C.F.R. 1.47(a) would be filed at the appropriate time,

discussing the present situation. A copy of this e-mail is attached to the petition as **Exhibit I**.

On July 21, 2000, Ms. Fornarotto sent an electronic e-mail to the inventor requesting his present address and phone number. No response to this e-mail was received and, as of the date of this petition, a response has still not been received **(Exhibit J)**.

In view of the above remarks and attached exhibits and Declaration, Applicants respectfully submit that diligent effort has been made to locate the Inventor and to have Mr. Ozkan execute the Declaration and Assignment forms. It is thus, respectfully submitted that this Petition be granted and the national stage of the present application be accepted without the signature of Mr. Ozkan.

Please charge the petition fee of $130 to Deposit Account 07-0832 and if an additional fee is due, please charge to same account.

Respectfully submitted,

By: _____
David T. Shoneman
Reg. No. 39,371
(609) 734-9875

Patent Operations
Thomson Licensing, Inc.
P.O. Box 5312,
Princeton, NJ 08543-5312

November 10, 2000

09581091/58/0874702

Abstract of the Disclosure

A method for providing conditional access (i.e., managing access) to a received scrambled audio/visual (A/V) signal from a variety of sources by utilizing secret sharing for key recovery. Secret sharing eliminates the necessity to protect and transfer the complete descrambling keys between devices, because a portion of the key is stored in the device or a smart card coupled thereto.

CONDITIONAL ACCESS SYSTEM FOR DIGITAL RECEIVERS

Field of the Invention

This invention concerns a system for providing conditional access (i.e., managing access) to a received scrambled audio/visual (A/V) signal from a variety of sources, such as, broadcast television networks, cable television networks, digital satellite systems, and internet service providers. Utilizing the concept of secret sharing, the system does not require full descrambling keys to be sent to the receiving device under encryption. The keys are recovered using a seed value received from the service provider and a seed value stored in the device.

Background of the Invention

Today, a user may receive services from a variety of service providers, such as broadcast television networks, cable television networks, digital satellite systems, and internet service providers. Most television receivers are capable of receiving unscrambled information or programs directly from broadcast and cable networks. Cable networks providing scrambled (or encrypted) programs usually require a separate stand alone set-top box to descramble (or decrypt) the program. Similarly, digital satellite systems usually provide scrambled programs that also require the use of a separate set-top box. These set-top boxes may utilize a removable smart card which contain the keys necessary for recovering the scrambling or descrambling keys. Protection of these important keys is paramount to prevent unauthorized copying of the programming.

European Patent Application Number EP-A-0 658 054 discloses generating a descrambling key using two pieces of transmitted data.

Summary of the Invention

In a conditional access (CA) system, the signals are usually scrambled using symmetric ciphers such as the Data Encryption Standard (DES). For security reasons, the scrambling key is

changed frequently, the period of change being as frequent as every few seconds. The protection of the descrambling keys, which need to be sent with the signals, is often provided by public-key cryptography. Public-key cryptography introduces problems associated with the public key infrastructure and distribution of the keys. This invention resides, in part, in recognition of the described problem and, in part, in providing a solution to the problem.

A signal (e.g., an event or program) as described herein comprises information such as (1) audio/visual data (for example, a movie, weekly "television" show or a documentary); (2) textual data (for example, an electronic magazine, paper, or weather news); (3) computer software; (4) binary data (for example, images); (5) HTML data (for example, web pages); or any other information for which access control may be involved. The service providers include any provider broadcasting events, for example, traditional broadcast television networks, cable networks, digital satellite networks, providers of electronic list of events, such as electronic program guide providers, and in certain cases internet service providers.

Generally, the present invention defines a method for managing access to a signal, representative of an event of a service provider, utilizing a smart card. That is, this method comprises receiving in a smart card, a signal that is scrambled using a scrambling key, receiving data representative of a first seed value, generating the scrambling key using the first seed value and a second seed value that is stored in the smart card and descrambling the signal using the generated scrambling key to provide a descrambled signal.

In accordance with one aspect of the present invention, the first and second seed values are points on a Euclidean plane and the step of generating the scrambling key comprises calculating

the Y-intercept of the line formed on the Euclidean plane by the first and second seed values.

In accordance with still another aspect of the present invention, a system for managing access between a service provider and a device having a smart card coupled to the device involves the device performing the steps of receiving from the service provider a signal representative of an event that is scrambled using a scrambling key, receiving from the service provider data representative of a first seed value selected from a Euclidean plane, and coupling the scrambled signal and the first seed value to the smart card. The smart card has a means for access control processing comprising means for generating a scrambling key by calculating the Y-intercept of the line formed in the Euclidean plane by the first seed value and a second seed value stored in the smart card and means for descrambling the signal using the generated scrambling key to generate a descrambled signal.

These and other aspects of the invention will be explained with reference to a preferred embodiment of the invention shown in the accompanying Drawings.

Brief Description of the Drawing

Figure 1 is a block diagram illustrating one architecture for interfacing a common set-top box to a variety of service providers.

Figure 2 is a block diagram of an exemplary implementation of a system for managing access to a device in accordance with the invention;

Figure 3a is a graphical representation of the determination of the scrambling key in accordance with one embodiment of this invention; and

Figure 3b is a graphical representation of an allocation of a unique and non-overlapping range for each service provider in accordance with Figure 3a.

Detailed Description of the Drawing

The present invention provides a conditional access system which may be utilized to obtain services from one of a plurality of sources. The conditional access system when implemented within a device, such as a digital television, digital video cassette recorder or set-top box, provides convenient management of the descrambling keys because only a portion of the seed value necessary for key generation is stored therein. For simplicity, the below description of the invention will be directed towards an implementation using a digital television and a smart card.

In Figure 1, system 30 depicts the general architecture for managing access to a digital television (DTV) 40. Smart Card (SC) 42 is inserted into, or coupled to, a smart card reader 43 of DTV 40; an internal bus 45 interconnects DTV 40 and SC 42 thereby permitting the transfer of data therebetween. Such smart cards include ISO 7816 cards having a card body with a plurality of terminals arranged on a surface in compliance with National Renewable Security Standard (NRSS) Part A or PCMCIA cards complying with NRSS Part B. Conceptually, when such a smart card is coupled to a smart card reader, the functionality of the smart card may be considered to be a part of the functionality of the device (e.g., DTV 40) thus removing the "boundaries" created by the physical card body of the smart card.

DTV 40 can receive services from a plurality of service providers (SPs), such as a broadcast television SP 50, a cable television SP 52, a satellite system SP 54, and an internet SP 56. Conditional Access Organization (CA) 75 is not directly connected to either the service providers or STB 40 but deals with key

management and issues public and private key pairs which may be used, if necessary, as explained below.

The present invention employs the concept of secret sharing which eliminates the requirement for using public key cryptography to ensure secure transmission of the audio/visual (A/V) stream from a service provider. A variation of a secret sharing scheme, developed by Adi Shamir, is known as a threshold scheme. An (m, n) threshold scheme involves breaking a secret into n pieces (which may be called shadows), in such a way that at least m (<=n) of the pieces are required to reconstruct the secret. A perfect threshold scheme is a threshold scheme in which a knowledge of m-1 or fewer shadows provides no information about the secret. For example, with a (3,4)-threshold scheme, the secret is divided into four portions but only three of the four portions are required to reconstruct the secret. Two of the portions, however, cannot reconstruct the secret. In Shamir's (m, m) threshold scheme, choosing a higher value for m, and storing (m-1) secrets in the card would increase the system's resistance to ciphertext only attacks, but would lead to more computations for polynomial construction.

Such a threshold scheme reduces the computational requirements for the card in DES key recovery. For each new key, only a simple operation is performed (i.e., the value of the polynomial at x = 0 is computed) as compared to RSA decryption which involves modular exponentiation. Additionally, security is "perfect" (i.e., given knowledge of (x_1, y_1), all values of the secret remain equally probable).

Figures 2 and 3 together, demonstrate one embodiment of the present invention. Particularly, stored in SC 42 is a first seed value (or data point). The first seed value may be thought of as a single point on a Euclidean plane, i.e., in the form of (x0, y0). Service provider 58 transmits a signal (or event or program) that may be scrambled by a symmetric key, for example a Data Encryption Standard (DES) key. In addition to the scrambled

signal, service provider 58 transmits a second seed value. Similarly, the second seed value may be a second single point from the same Euclidean plane, i.e., in the form of (x1, y1).

The scrambled A/V signal and the second seed value is received by DTV 40 and is coupled to SC 42 for processing. SC 42 receives the second seed value and utilizes both the stored first seed value and the received second seed value to reconstruct (or recover) the symmetric key. SC 42 uses the reconstructed symmetric key to descramble the received scrambled A/V signal and generate a descrambled A/V signal. This descrambled A/V signal is provided to DTV 40 for display.

Recovery of the symmetric key is achieved by constructing a polynomial utilizing the first and the second seed values; the y-intercept of the constructed polynomial is the symmetric key. For example, given (x0, y0) and (x1, y1), the symmetric key is constructed by computing the value of $[\{(y1-y0)/(x1-x0)\}(x-x0)] + y0$ at $x = 0$. Figure 3a illustrates a graphical representation of the present invention.

Such an approach permits more than one service provider to share the stored second seed value (x0, y0). Each service provider would then be free to choose its own first seed value. The probability of constructing polynomials with identical y-intercepts (i.e., identical symmetric keys) is low. However, the range of possible second seed values could be allocated such that each service provider has a unique and non-overlapping range (see Figure 3b). Further, it is within the scope of the present invention that each service provider could choose its own first seed value which could be encrypted using the public key of the smart card before downloading. The seed value would be recovered by the smart card using its stored private key (K_{SCpri}).

The general architecture of system 30 lends itself to achieving the goal of minimizing the amount of information (or

keys) that needs to be stored in a smart card to permit access to more than one service provider.

The robustness of the defined system may be increased by scrambling portions of the event with different keys and transmitting different second seed values. Further, it is within the scope of the present invention that more than two seed values may be used to recover the symmetric key. For example, two or more seed value may be stored in the smart card and a seed value may be transmitted with the encrypted A/V signal. The symmetric key would be recovered using all of the seed values.

While the invention has been described in detail with respect to numerous embodiments thereof, it will be apparent that upon reading and understanding of the foregoing, numerous alterations to the described embodiment will occur to those skilled in the art and it is intended to include such alterations within the scope of the appended claims.

8. The combination of Claim 5 wherein the device is a digital video cassette recorder.

Claims

Sub A1

1. A method for managing access to a signal representative of an event of a service provider, said method comprising:

(a) receiving said signal in a smart card, said signal being scrambled using a scrambling key;

(b) receiving, in said smart card, data representative of a first seed value;

characterized in that

(c) generating said scrambling key using said first seed value and a second seed value, said second seed value being pre-stored in said smart card; and

(d) descrambling said signal using said generated scrambling key to provide a descrambled signal.

2. The method of Claim 1 wherein said first and second seed values are points on a Euclidean plane.

3. The method of Claim 2 wherein the step of generating said scrambling key comprises calculating the Y-intercept of a line formed on said Euclidean plane by said first and second seed values.

4. The method of Claim 3 wherein said smart card has a card body having a plurality of terminals arranged on a surface of said card body in accordance with one of ISO 7816 and PCMCIA card standards.

ARTICLE 34

SUB A2

5. In combination in a system for managing access between a service provider and a device having a smart card coupled thereto, said device performing the steps of:

(a) receiving from the service provider a signal representative of an event, said signal being scrambled using a scrambling key;

(b) receiving from the service provider data representative of a first seed value, said first seed value being selected from a Euclidean plane; characterized in that

(c) coupling said scrambled signal and said first seed value to said smart card, said smart card having a means for access control processing; said access control processing means comprising means for generating said scrambling key by calculating the Y-intercept of a line on said Euclidean plane by said first seed value and a second seed value, said second seed value being pre-stored in said smart card and means for descrambling said signal using said generated scrambling key to generate a descrambled signal; and

(d) receiving from said smart card said descrambled signal.

6. The combination of Claim 5 wherein the device is a set-top box.

7. The combination of Claim 5 wherein the device is a digital television.

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PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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H04N 7/16	A1	(43) International Publication Date:	17 June 1999 (17.06.99)

(21) International Application Number: PCT/US98/26069

(22) International Filing Date: 9 December 1998 (09.12.98)

(30) Priority Data:
60/069,063 10 December 1997 (10.12.97) US

(71) Applicant *(for all designated States except US)*: THOMSON CONSUMER ELECTRONICS, INC. [US/US]; 10330 North Meridian Street, Indianapolis, IN 46290–1024 (US).

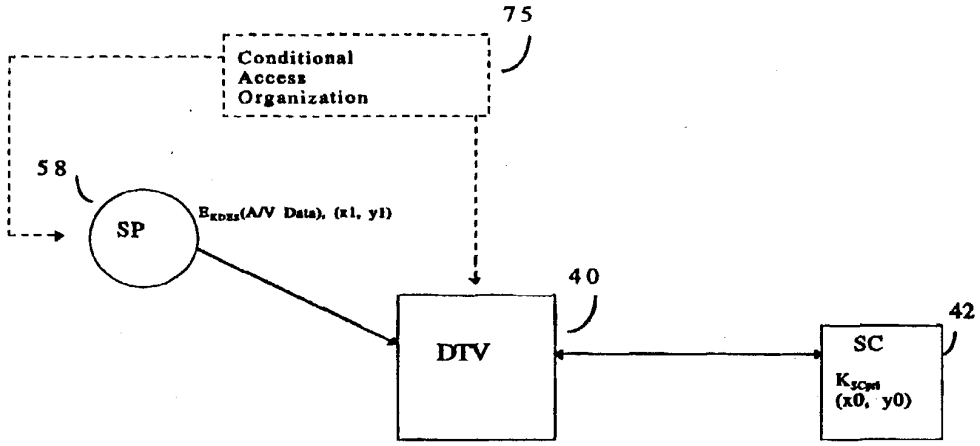
(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: ESKICIOGLU, Ahmet, Mursit [TR/US]; 8235 Lakeshore Trail #125, Indianapolis, IN 46250 (US). OZKAN, Mehmet, Kemal [TR/TR]; Savasci Sokak Bozokatt 19/1, Avcilar, 34840 Istanbul (TR). BEYERS, Billy, Wesley, Jr. [US/US]; 6920 Woodcrest Drive, Greenfield, IN 46104 (US).

(74) Agents: TRIPOLI, Joseph, S. et al.; GE & RCA Licensing Management Operation, Inc., P.O. Box 5312, Princeton, NJ 08540 (US).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: CONDITIONAL ACCESS SYSTEM FOR DIGITAL RECEIVERS



(57) Abstract

A method for providing conditional access (i.e., managing access) to a received scrambled audio/visual (A/V) signal from a variety of sources by utilizing secret sharing for key recovery. Secret sharing eliminates the necessity to protect and transfer the complete descrambling keys between devices, because a portion of the key is stored in the device or a smart card coupled thereto.

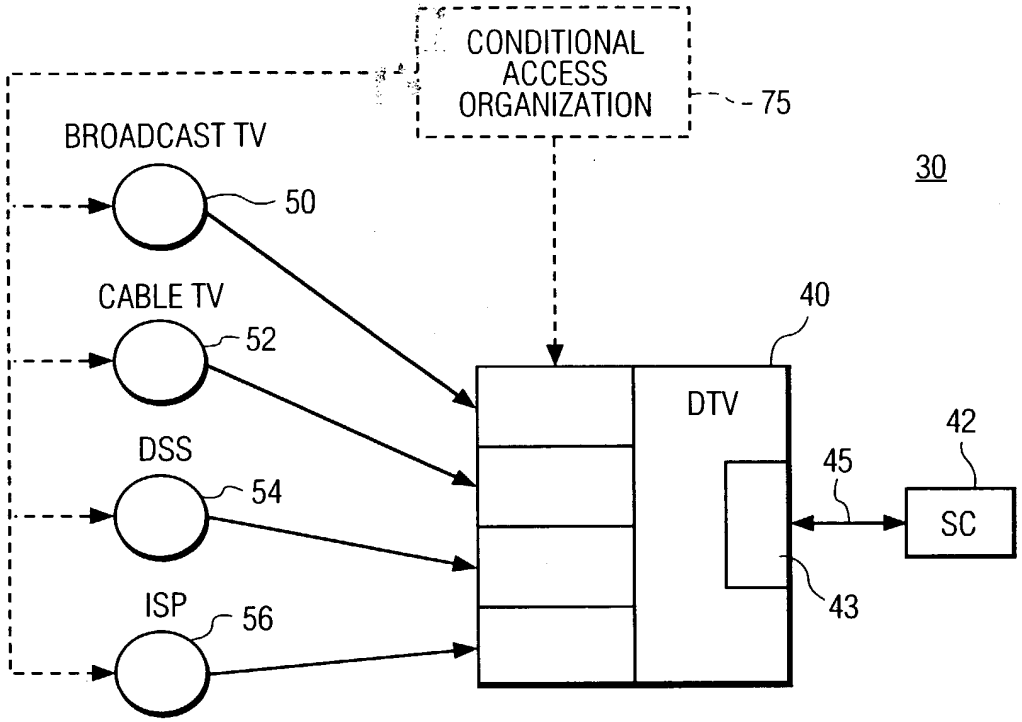

CONDITIONAL ACCESS ORGANIZATION
75
BROADCAST TV
50
30
CABLE TV
52
40
DTV
42
DSS
54
45
SC
ISP
56
43

FIG. 1

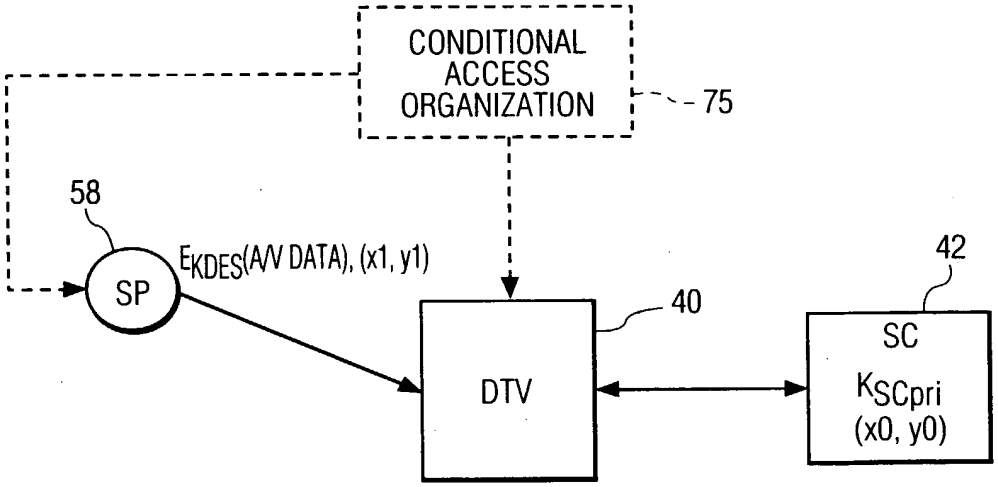

CONDITIONAL ACCESS ORGANIZATION
75
58
SP
E_{KDES}(A/V DATA), (x1, y1)
42
40
SC
DTV
K_{SCpri}
(x0, y0)

FIG. 2

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09/581064

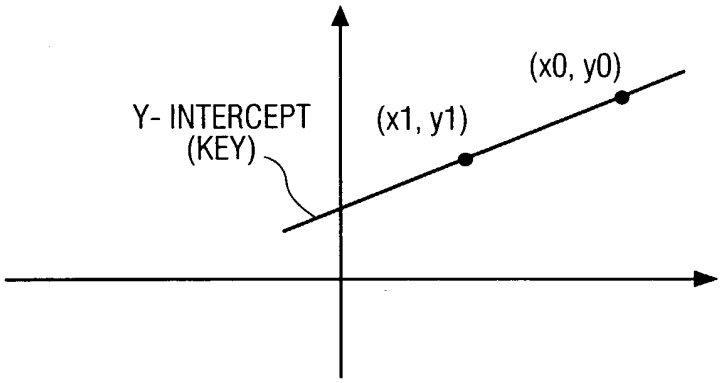


FIG. 3a

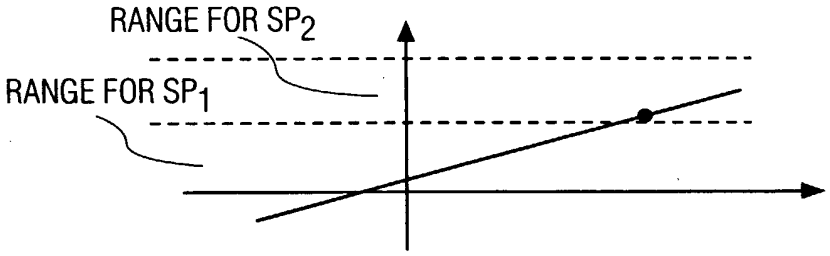


FIG. 3b

COMBINED DECLARATION FOR P/ T APPLICATION AND POWER OF ORNEY
(Includes Reference to PCT International Applications)

ATTORNEY'S DOCKET NUMBER
RCA 88783

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

CONDITIONAL ACCESS SYSTEM FOR DIGITAL RECEIVERS

the specification of which (check only one item below):

☐ is attached hereto.

☐ was filed as United States application

Serial No. _____

on _____,

and was amended

on _____ (if applicable).

☒ was filed as PCT international application

Number PCT/US98/26069

on 09 December 1998,

and was amended under PCT Article ~~19~~ 34

on December 9, 1999 (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowlege the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:

COUNTRY (if PCT, indicate "PCT")	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 USC 119
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO

09/581064

Combined Declaration For Patent Application and Power of Attorney (Con. ...)
(Includes Reference to PCT International Applications)

ATTORNEY'S DOCKET NUMBER: RCA 88783

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowlege the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. 120:

U.S. APPLICATIONS		STATUS (Check one)		
U.S. APPLICATION NUMBER	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
60/069,063	December 10, 1997			

PCT APPLICATIONS DESIGNATING THE U.S.

PCT APPLICATION NO.	PCT FILING DATE	U.S. SERIAL NUMBERS ASSIGNED (if any)			
PCT/US98/26069	09December1998 (09.12.98)				

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(List name and registration number)*

Joseph S. Tripoli - Reg. No. 26,040
Joseph J. Laks - Reg. No. 27,914
David T. Shoneman - Reg. No. 39,371

Send Correspondence to:

Mr. Joseph S. Tripoli - Patent Operations
THOMSON multimedia Licensing Inc.
P.O. Box 5312
Princeton, New Jersey 08540 US

Direct Telephone Calls to: *(name and telephone number)*

1-609-734-9875

201 FULL NAME OF INVENTOR	FAMILY NAME: ESKICIOGLU	FIRST GIVEN NAME: Ahmet		SECOND GIVEN NAME: Mursit
RESIDENCE & CITIZENSHIP	CITY: Indianapolis	STATE OR FOREIGN COUNTRY: Indiana IN		COUNTRY OF CITIZENSHIP: TR
POST OFFICE ADDRESS	POST OFFICE ADDRESS: 8235 Lakeshore Trail #125	CITY: Indianapolis		STATE & ZIP CODE/COUNTRY: Indiana 46250 US
202 FULL NAME OF INVENTOR	FAMILY NAME: OZKAN	FIRST GIVEN NAME: Mehmet		SECOND GIVEN NAME: Kemal
RESIDENCE & CITIZENSHIP	CITY: Avcilar	STATE OR FOREIGN COUNTRY: Turkey IN		COUNTRY OF CITIZENSHIP: TR
POST OFFICE ADDRESS	POST OFFICE ADDRESS: Savasci Sok. Bozokatt 19/1	CITY: Avcilar		STATE & ZIP CODE/COUNTRY: Istanbul 34840, Turkey
203 FULL NAME OF INVENTOR	FAMILY NAME: BEYERS JR.	FIRST GIVEN NAME: Billy		SECOND GIVEN NAME: Wesley
RESIDENCE & CITIZENSHIP	CITY: Carmel	STATE OR FOREIGN COUNTRY: Indiana IN		COUNTRY OF CITIZENSHIP: US
POST OFFICE ADDRESS	POST OFFICE ADDRESS: 1075 Arrow Wood Drive	CITY: Carmel		STATE & ZIP CODE/COUNTRY: Indiana 46033 US

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

SIGNATURE OF INVENTOR 201	SIGNATURE OF INVENTOR 202	SIGNATURE OF INVENTOR 203
Ahmet Mursit Eskicioglu Ahmet Mursit Eskicioglu	Mehmet Kemal Ozkan	Billy Wesley Beyers Jr. Billy Wesley Beyers Jr.
DATE: 10/10/2000	DATE: 2000	DATE: Oct 10 2000

COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY

(Includes Reference to PCT International Applications)

ATTORNEY'S DOCKET NUMBER

RCA 88783

07 OCT 2002

09/ 81064

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

CONDITIONAL ACCESS SYSTEM FOR DIGITAL RECEIVERS

the specification of which (check only one item below):

☐ is attached hereto.

☐ was filed as United States application

Serial No. _____

on _____,

and was amended

on _____ (if applicable).

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Number PCT/US98/26069

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COUNTRY (if PCT, indicate "PCT")	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 USC 119
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO

Combined Declaration For Patent Application and Power of Attorney (Conu[illegible]
Includes Reference to PCT International Applications)

ATTORNEY'S DOCKET NUMBER
RCA 88783

07 OCT 2002

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PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. 120:

U.S. APPLICATIONS		STATUS (Check one)		
U.S. APPLICATION NUMBER	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
60/069,063	December 10, 1997			

PCT APPLICATIONS DESIGNATING THE U.S.

PCT APPLICATION NO.	PCT FILING DATE	U.S. SERIAL NUMBERS ASSIGNED (if any)			
PCT/US98/26069	09December1998(09.12.98)				

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(List name and registration number)*

3 Joseph S. Tripoli - Reg. No. 26,040
Joseph J. Laks - Reg. No. 27,914
David T. Shoneman - Reg. No. 39,371

Send Correspondence to:

Mr. Joseph S. Tripoli - Patent Operations
THOMSON multimedia Licensing Inc.
P.O. Box 5312
Princeton, New Jersey 08540 US

Direct Telephone Calls to: *(name and telephone number)*

1-609-734-9875

FULL NAME OF INVENTOR	FAMILY NAME: ESKICIOGLU	FIRST GIVEN NAME: Ahmet	SECOND GIVEN NAME: Mursit
RESIDENCE & CITIZENSHIP	CITY: Indianapolis	STATE OR FOREIGN COUNTRY: Indiana IN	COUNTRY OF CITIZENSHIP: TR
POST OFFICE ADDRESS	POST OFFICE ADDRESS: 8235 Lakeshore Trail #125	CITY: Indianapolis	STATE & ZIP CODE/COUNTRY: Indiana 46250 US
FULL NAME OF INVENTOR	FAMILY NAME: OZKAN	FIRST GIVEN NAME: ~~Mehmet~~	SECOND GIVEN NAME: Kemal
RESIDENCE & CITIZENSHIP	CITY: ~~Avcilar~~ Istanbul MW	STATE OR FOREIGN COUNTRY: Turkey IN	COUNTRY OF CITIZENSHIP: TR
POST OFFICE ADDRESS	POST OFFICE ADDRESS: ~~Savasci Sok. Bozokatt 1971~~ Fenerioglu Sok. Prenses Ahye Sitesi, No 46 A-74	CITY: ~~Avcilar~~ Fenerioglu Istanbul	STATE & ZIP CODE/COUNTRY: Istanbul ~~34840~~ MW, Turkey
FULL NAME OF INVENTOR	FAMILY NAME: BEYERS JR.	FIRST GIVEN NAME: Billy	SECOND GIVEN NAME: Wesley
RESIDENCE & CITIZENSHIP	CITY: Carmel	STATE OR FOREIGN COUNTRY: Indiana IN	COUNTRY OF CITIZENSHIP: US
POST OFFICE ADDRESS	POST OFFICE ADDRESS: 1075 Arrow Wood Drive	CITY: Carmel	STATE & ZIP CODE/COUNTRY: Indiana 46033 US

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

SIGNATURE OF INVENTOR 201	SIGNATURE OF INVENTOR 202	SIGNATURE OF INVENTOR 203
Ahmet Mursit Eskicioglu	Mehmet Kemal Ozkan	Billy Wesley Beyers, Jr.
Ahmet Mursit Eskicioglu	Mehmet Kemal Ozkan	Billy Wesley Beyers Jr.
DATE: 10/10/2000	DATE: September 16 2002	DATE: Oct 10 2000

EXHIBIT A

Express Mail Label: EL694405034US

PATENT COOPERATION TREATY
IN THE UNITED STATES RECEIVING OFFICE (RO/US)

Applicant : AHMET MURSIT ESKICIOGLU, MEHMET KEMAL OZKAN, BILLY WESLEY BEYERS JR.
Filed : Herewith
For : CONDITIONAL ACCESS SYSTEM FOR DIGITAL RECEIVERS
Int'l PCT No. PCT/US98/26069
Int'l Filing Date: 09 December 1998

RULE 1.131 DECLARATION OF DAVIDA FORNAROTTO

I, Davida Fornarotto, declare as follows:

1. I am currently employed by Thomson multimedia Licensing, Inc., assignee of the above-captioned United States Patent Application;

2. I am responsible for filing and maintaining a docket for all PCT applications for Thomson multimedia Licensing, Inc. These duties include obtaining signatures from inventors on Declarations, Assignments and Powers of Attorney;

3. On March 4, 1999, I sent an e-mail to Mr. Mehmet Kemal Ozkan to verify his home address in Turkey. On March 5, 1999, Mr. Ozkan answered via e-mail and confirmed his address. On March 5, 1999, a letter was sent to that address (last known address of Inventor). The letter was sent via DHL airway bill # 8879654851 and included a copy of the application along with a PCT Assignment to Thomson Consumer Electronics Inc. and Power of Attorney, for signature by the Inventor, Mr. Ozkan Kemal Ozkan, for filing in the United States.

4. On March 24, 1999, I sent an e-mail to Mr. Ozkan requesting the signed formal papers. On March 25, 1999, Mr. Ozkan replied via e-mail that he would be sending the signed papers soon. On March 31, 1999, I sent another electronic e-mail requesting the signed formal papers. The last communication or correspondence I received from Mr. Ozkan was an electronic e-mail message on April 5, 1999, stating that he was sending the documents with someone travelling to the U.S.

5. On November 22, 1999, I sent an e-mail to Mr. William Lagoni, Intellectual Property Administrator at the main office for Thomson multimedia Licensing Inc. in Indianapolis. This e-mail requested a last known address for Mr. Ozkan.

6. On November 22, 1999, I received a reply from Mr. Lagoni including a last known address for Mr. Ozkan as well as additional contact information. Mr. Lagoni also suggested that I e-mail Mr. Ozkan in this reply.

7. Also on November 22, 1999, I sent an e-mail to Mr. Ozkan requesting an updated address to which the copy of the application along with a PCT Assignment and Power of Attorney could be sent.

8. On December 3, 1999, I wrote another e-mail to Mr. Lagoni informing him that no response was received from Mr. Ozkan.

9. I received a response from Mr. Lagoni by return e-mail informing me that he also sent an e-mail to Mr. Ozkan and had not received a reply.

10. On December 7, 1999, I received an e-mail from Mr. Lagoni stating he had sent two e-mails to Mr. Ozkan, each of which had been returned as undeliverable.

11. I responded to Mr. Lagoni indicating that, upon discussing the situation with Mr. Irwin Krittman, we had decided to file a Petition under 37 C.F.R. 1.47(a).

12. On April 6, 2000, a letter was received from DHL confirming their attempts to reach Mr. Ozkan and the difficulties encountered.

13. On July 21, 2000, I sent an e-mail to Mr. Ozkan requesting his present address and phone number. I have not received a response to that e-mail and, as of the date of this petition, I have still not received a response.

14. All statements made herein to my knowledge are true. These statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful statements may jeopardize the validity of the Application or any patent issued thereon.

Nov. 10, 2000
Date

Davida Fornarotto
Davida Fornarotto

EXHIBIT B

09581064 .100702

EXPRESS MAIL EL694405034US

FORM PTO-1595
9-21-95

RCA 88783

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

RECORDATION FORM COVER SHEET
PATENTS ONLY

To the Honorable Assistant Commissioner for Patents: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):
AHMET MURSIT ESKICIOGLU
MEHMET KEMAL OZKAN
BILLY WESLEY BEYERS JR.
Additional name(s) of conveying party(ies) attached: Yes No X

2. Name and address of receiving party(ies):
Name: THOMSON Licensing S.A.
Internal Address: 46 Quai A. Le Gallo
F-92648 Boulogne Cedex, France
Street Address:
City: State: Zip:
Additional name(s) & address(es) attached? Yes No X

3. Nature of conveyance:
Assignment X
Security Agreement
Other
Merger
Change of Name
Execution Date: October 10, 2000 (1 missing signature)

4. Application number(s) or patent number(s):
If this document is being filed together with a new application, the execution date of the application is:
A. Patent Application No.(s) PCT/US98/26069
US 09/581,064
B. Patent No.(s)
Additional numbers attached? Yes No X

5. Name and address of party to whom correspondence concerning document should be mailed:
Name: JOSEPH S. TRIPOLI
Internal Address: PATENT OPERATIONS-
THOMSON MULTIMEDIA LICENSING INC.
Street Address: PO Box 5312
City: PRINCETON State: NEW JERSEY Zip :08543-5312

6. Total number of applications and patents involved: 1

7. Total Fee (37 CFR 3.41): $40.00
Enclosed
X Authorized to be charged to deposit account

8. Deposit account number:
07-0832

DO NOT USE THIS SPACE

9. Statement and signature.
To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

DAVID T. SHONEMAN
Name of Person Signing

Signature

10 NOV 2000
Date

Total number of pages including cover sheet, attachments, and document: 2

OMB No. 0651-0011 (exp. 4/94)

DO NOT DETACH THIS PORTION

Mail documents to be recorded with required cover sheet information to:

Assistant Commissioner for Patents
Box Assignments
Washington, D.C. 20231

Public burden reporting for this sample cover sheet is estimated to average about 30 minutes per document to be recorded, including time for reviewing the document and gathering the data needed, and completing and reviewing the sample cover sheet. Send comments regarding this burden estimate to the U.S. Patent and Trademark Office, Office of Information Systems, PK2-1000C, Washington, D.C. 20231, and to the Office of Management and Budget, Paperwork Reduction Project (0651-0011), Washington, D.C. 20503.

ASSIGNMENT AND AGREEMENT

I hereby declare that I am the sole inventor (if only one inventor is named below) or one of 3 joint inventors (if plural inventors are named below) of the inventions relating to CONDITIONAL ACCESS SYSTEM FOR DIGITAL RECEIVERS and described in RCA Docket No 88783 and the thereupon-based International (Patent Cooperation Treaty) Application for patent about to be filed or lately filed by said corporation naming me/us as inventor(s).

For valuable consideration received, I hereby sell, assign and transfer to THOMSON LICENSING S.A., a corporation duly organized and existing under the laws of the country of France, its successors, and assigns my entire right, title and interest, for all countries in and to said inventions and application, and all the rights and privileges under any and all Patents that may be granted therefor, and any divisions, continuations, reissues and extensions thereof.

I agree that, when requested, I will, without charge to said corporation but at its expense, sign all papers, take all rightful oaths, make all rightful declarations and do all acts which may be necessary, desirable or convenient for securing and maintaining patents or other forms of protection for said inventions in any and all countries and for vesting title thereto in said corporation, its successors, assigns or nominees.

I agree that I will communicate to said corporation or its representatives any facts known to me respecting said inventions and when requested by said corporation and at its expense will testify in any legal proceedings, and generally do everything possible to aid said corporation, its successors, assigns and legal representatives or nominees, to obtain or enforce proper protection for said inventions in any and all countries.

I authorize and empower said corporation, its successors, assigns or nominees, to make application for patent or other form of protection for said inventions in its or their own name, or in my/our name, in any and all countries and to invoke and claim for any application for patent or other form of protection for said inventions filed by it or them, the benefit of the right of priority provided by the International Convention for the Protection of Industrial Property, as amended, or by any convention which may henceforth be substituted for it, and to invoke and claim such right of priority without further written or oral authorization from me.

I hereby consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any assignment, consent to file or like document which may be required in any country for any purpose and more particularly in proof of the right of the said corporation or its successors, assigns or nominees to apply for patent or other proper protection for said inventions, and to claim the aforesaid benefits of the right of priority provided by the International Convention for the Protection of Industrial Property, as amended, or by any convention which may henceforth be substituted for it.

I covenant with THOMSON LICENSING S.A., its successors, assigns, legal representatives, and nominees, that to the best of my knowledge the right, title and interest herein conveyed by me are free and clear of any encumbrance, and that I have full right to convey the same as herein expressed.

Signed at	Indianapolis, IN	Date	10/10/2000
Inventor (1)	AHMET MURSIT ESKICIOGLU (Type or Print)		Ahmet Mursit Eskicioglu (Signature in Full. No initials.)
Post Office Address	8235 Lakeshore Trail #125, Indianapolis, Indiana 46250 USA		
1st Witness	KUMAR RAMASWAMY (Type or Print)		Kumar Ramaswamy (Signature in Full. No initials.)
2ndWitness	Kathy Lynn Graves (Type or Print)		Kathy Lynn Graves (Signature in Full. No initials.)
Signed at		Date	
Inventor (2)	MEHMET KEMAL OZKAN (Type or Print)		(Signature in Full. No initials.)
Post Office Address	Savasci Sok. Bozokatt 19/1, Avcilar 34840, Istanbul, Turkey		
1st Witness	(Type or Print)		(Signature in Full. No initials.)
2ndWitness	(Type or Print)		(Signature in Full. No initials.)
Signed at	Indianapolis	Date	Oct 10, 2000
Inventor (3)	BILLY WESLEY BEYERS JR. (Type or Print)		Billy Wesley Beyers Jr. (Signature in Full. No initials.)
Post Office Address	1075 Arrow Wood Drive, Carmel, Indiana 46033 USA		
1st Witness	Kathy Lynn Graves (Type or Print)		Kathy Lynn Graves (Signature in Full. No initials.)
2ndWitness	IZZAT HEKMAT IZZAT (Type or Print)		Izzat Hekmat Izzat (Signature in Full. No initials.)

After this Assignment has been recorded please RETURN to: Patent Operations
THOMSON multimedia Licensing Inc.
PO Box 5312
Princeton, NJ 08543-5312

Pat Form 7/89

COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY
(Includes Reference to PCT International Applications)

ATTORNEY'S DOCKET NUMBER
RCA 88783

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

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the specification of which (check only one item below):

☐ is attached hereto.

☐ was filed as United States application

Serial No. _____

on _____,

and was amended

on _____ (if applicable).

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Number PCT/US98/26069

on 09 December 1998,

and was amended under PCT Article 19 34

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PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:

COUNTRY (if PCT, indicate "PCT")	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 USC 119
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO
			☐ YES ☐ NO

ombined Declaration For Patent Application and Power of Attorney (Continued)
c udes Reference to PCT International Applications)

ATTORNEY'S DOCKET NUMBER
RCA 88783

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U.S. APPLICATIONS		STATUS (Check one)		
U.S. APPLICATION NUMBER	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
60/069,063	December 10, 1997			

PCT APPLICATIONS DESIGNATING THE U.S.

PCT APPLICATION NO.	PCT FILING DATE	U.S. SERIAL NUMBERS ASSIGNED (if any)			
T/US98/26069	09December1998 (09.12.98)				

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Joseph J. Laks - Reg. No. 27,914
David T. Shoneman - Reg. No. 39,371

nd Correspondence to:
Mr. Joseph S. Tripoli - Patent Operations
THOMSON multimedia Licensing Inc.
P.O. Box 5312
Princeton, New Jersey 08540 US

Direct Telephone Calls to: *(name and telephone number)*
1-609-734-9875

FULL NAME OF INVENTOR	FAMILY NAME: ESKICIOGLU	FIRST GIVEN NAME: Ahmet	SECOND GIVEN NAME: Mursit
RESIDENCE & CITIZENSHIP	CITY: Indianapolis	STATE OR FOREIGN COUNTRY: Indiana	COUNTRY OF CITIZENSHIP: TR
POST OFFICE ADDRESS	POST OFFICE ADDRESS: 8235 Lakeshore Trail #125	CITY: Indianapolis	STATE & ZIP CODE/COUNTRY: Indiana 46250 US
FULL NAME OF INVENTOR	FAMILY NAME: OZKAN	FIRST GIVEN NAME: Mehmet	SECOND GIVEN NAME: Kemal
RESIDENCE & CITIZENSHIP	CITY: Avcilar	STATE OR FOREIGN COUNTRY: Turkey	COUNTRY OF CITIZENSHIP: TR
POST OFFICE ADDRESS	POST OFFICE ADDRESS: Savasci Sok. Bozokatt 19/1	CITY: Avcilar	STATE & ZIP CODE/COUNTRY: Istanbul 34840, Turkey
FULL NAME OF INVENTOR	FAMILY NAME: BEYERS JR.	FIRST GIVEN NAME: Billy	SECOND GIVEN NAME: Wesley
RESIDENCE & CITIZENSHIP	CITY: Carmel	STATE OR FOREIGN COUNTRY: Indiana	COUNTRY OF CITIZENSHIP: US
POST OFFICE ADDRESS	POST OFFICE ADDRESS: 1075 Arrow Wood Drive	CITY: Carmel	STATE & ZIP CODE/COUNTRY: Indiana 46033 US

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SIGNATURE OF INVENTOR 201	SIGNATURE OF INVENTOR 202	SIGNATURE OF INVENTOR 203
Ahmet Mursit Eskicioglu met Mursit Eskicioglu	Mehmet Kemal Ozkan	Billy Wesley Beyers Jr. Billy Wesley Beyers Jr.
DATE 10/10/2000	DATE 2000	DATE Oct 10 2000

[redacted]

EXHIBIT C

Fornarotto, Davida (CORP, GERLMO)

From: Fornarotto, Davida (CORP, GERLMO)
Sent: Thursday, March 4, 1999 2:56 PM
To: 'mehmet.ozkan@do.net.tr'
Subject: Your Correct Home Address

Dear Mr. Ozkan:

We are going to file three applications of yours via the PCT and would like to send forms to you for your signature.

The address that I have for you is as follows:

Idealtepe Mah. Aydin Sok.
Serdaroglu Apt 10/14
Maltepe 81580 Istanbul
Turkey

Would you please reply back and let me know if this is your correct home address. If it is not, please let me know what your correct address is and also a phone number so we may be able to get in touch with you.

Thank you for your help in this matter.

Ms. Davida Fornarotto
Paralegal
Thomson multimedia Licensing Inc.

Fornarotto, Davida (CORP, GERLMO)

From: Mehmet Ozkan
Sent: Friday, March 5, 1999 2:42 AM
To: Fornarotto, Davida (CORP, GERLMO)
Subject: Re: Your Correct Home Address

Ms. Davida Fornarotto,
the address is correct

Idealtepe Mah. Aydin Sok.
Serdaroglu Apt 10/14
Maltepe 81580 Istanbul
Turkey

in addition my phone numbers are:
home: (90) 216 489 6177
work: (90) 212 215 5163
GSM (90) 532 644 5370

E-mail mehmet.ozkan@do.net.Tr

To expedite the process and make sure timely delivery, I would appreciate if you
could include DHL return slip or account that can be used from TURKEY.
The number you usually include is only valid for the US and does not work from here

Regards

Mehmet Ozkan

-----Original Message-----
From: Fornarotto, Davida (CORP, GERLMO) <davida.fornarotto@corporate.ge.com>
To: 'mehmet.ozkan@do.net.tr' <mehmet.ozkan@do.net.tr>
Date: Thursday, March 04, 1999 9:59 PM
Subject: Your Correct Home Address

>Dear Mr. Ozkan:
>
>We are going to file three applications of yours via the PCT and would like
>to send forms to you for your signature.
>
>The address that I have for you is as follows:
>
>Idealtepe Mah. Aydin Sok.
>Serdaroglu Apt 10/14
>Maltepe 81580 Istanbul
>Turkey
>
>Would you please reply back and let me know if this is your correct home
>address. If it is not, please let me know what your correct address is and
>also a phone number so we
>may be able to get in touch with you.
>

>Thank you for your help in this matter.
>
>
>Ms. Davida Fornarotto
>Paralegal
>Thomson multimedia Licensing Inc.

DHL WORLDWIDE EXPRESS®

Shipment Airwaybill

1-800-CALL-DHL (Non-negotiable) PPF
WEB ADDRESS: http://www.dhl.c only PPF

88796548[illegible]

Quote this shipment number in [illegible]quiry

ORIGIN: TTN | DESTINATION: [illegible]

1 From (Shipper)

Account no.: 781023933

Shipper's reference: 88914, 802 89399 89400

Company name: THOMSON MULTIMEDIA LICENSING

Shipper's name: Ms. Davida Fornarotto

Address:
2 INDEPENDENCE WAY
PRINCETON NJ

Zip code (required): 085406620

Phone/Fax/E-mail *circle one* (required): (609) 734-9400

2 To (Recipient)

Company name:

Attention: Mr. Mehmet Kemal Ozkan

Delivery address:
Idealtepe Mah. Aydin Sok.
Serdaroglu Apt 10/14
Maltepe 81580 Istanbul
Turkey

Zip/Postcode (required):

Phone/Fax/E-mail *circle one* (required):

3 Shipment details

Domestic Services
- ☐ USA OVERNIGHT

International Services
- ☒ INT'L DOCUMENT EXPRESS
- ☐ WORLDWIDE PRIORITY EXPRESS *Non document shipments / unlimited weight*
- ☐ WORLDFREIGHT *Prior arrangements required / 220 lbs. Minimum*

WorldMail Services ☐ 1st class ☐ APM ☐ 2nd class ☐ Other

Special Services *extra charges may apply*
- ☐ SATURDAY DELIVERY *(not available to all locations)*
- ☐ POD *Shipper's fax/e-mail for POD (optional)*
- ☐ OTHER *specify*

Payment Options *not all options available to all countries*
- ☒ Shipper's account
- ☐ Recipient ☐ Third party

Acct. No.

☐ Cash / Check / Credit Card *circle one*

No.

Expires. Type

Shipment insurance *if desired, enter amount below*

U.S. $ *Insured value*

Full description of contents

BUSINESS DOCUMENTS

International non document shipments only
Attach original and four copies of a Commercial Invoice

Declared value for customs (In US $).

Export license No./Symbol *(if applicable)*

Harmonized Sched. B No. *(if applicable)*

Type of export *If left blank, Permanent is assumed*
- ☐ Permanent
- ☐ Temporary ☐ Repair/Return

Shipper's EIN/SSN

These commodities, technology or software were exported from the United States in accordance with the export administration regulations. Diversion contrary to U.S. law prohibited.

Destination duties/taxes *If left blank recipient pays duties/taxes*
- ☐ Recipient ☐ Shipper ☐ Other

Specify destination approved account number

4 Pcs/Weight/Size

No. of pieces: 1

Weight *if DHL Express Document packaging is used, enter XD*: 1 lb

Dimensions *in inches*

Pieces	length	width	height
1 @	x	x	
@	x	x	
@	x	x	

DIMENSIONAL/CHARGED WEIGHT: lb

CODES	CHARGES Services
	Special services
	Insurance
Drop Box/ Exp. Center #	
TOTAL	

TRANSPORT COLLECT STICKER No.

PICKED UP BY: [illegible]

Time: 1547

Date: 3/5/99

5 Shipper's authorization and signature

I/we agree that DHL's standard terms apply to this shipment and limit DHL's liability for loss or damage to U.S. $ 100. The Warsaw Convention may also apply (see reverse). I/we authorize DHL to complete other documents necessary to export this shipment. I/we understand that insurance is available on request, for an extra charge. I/we agree to pay all charges if the recipient or third party does not pay. I/we understand that DHL DOES NOT TRANSPORT CASH.

Signature (required): N. Fornarotto

Date: 3/5/99

Shipment Airwaybill

1-800-CALL-DHL (Non-negotiable) only

WEB ADDRESS: http://www.dhl.c...

PPF PPF

8879654851

Quote this shipment number in ...uiry

ORIGIN	DESTINATION
ITN	

1 From (Shipper)

Account no.: 781023933

Shipper's reference: 88914, 89399 89400

Company name: THOMSON MULTIMEDIA LICENSING

Shipper's name: Ms. Davida Fornarotto

Address:

2 INDEPENDENCE WAY
PRINCETON NJ

Zip code (required): 085406620

Phone/Fax/E-mail *circle one* (required): (609) 734-9400

2 To (Recipient)

Company name:

Attention: Mr. Mehmet Kemal Ozkan

Delivery address:

Idealtepe Mah. Aydin Sok.
Serdaroglu Apt 10/14
Maltepe 81580 Istanbul
Turkey

Zip/Postcode (required):

Phone/Fax/E-mail *circle one* (required):

3 Shipment details

Domestic Services
- ☐ USA OVERNIGHT

International Services
- ☒ INT'L DOCUMENT EXPRESS
- ☐ WORLDWIDE PRIORITY EXPRESS *Non document shipments / unlimited weight*
- ☐ WORLDFREIGHT *Prior arrangements required / 220 lbs. Minimum*

WorldMail Services ☐ 1st class ☐ APM ☐ 2nd class ☐ Other.....

Special Services *extra charges may apply*
- ☐ SATURDAY DELIVERY *(not available to all locations)*
- ☐ POD *Shipper's fax/e-mail for POD (optional)*
- ☐ OTHER *specify* /

Payment Options *not all options available to all countries*
- ☒ Shipper's account
- ☐ Recipient ☐ Third party

Acct. No.

☐ Cash / Check / Credit Card *circle one*

No.

Expires. Type. . . .

Shipment insurance *if desired, enter amount below*

U.S. $ *Insured value*

Full description of contents

BUSINESS DOCUMENTS

International non document shipments only
Attach original and four copies of a Commercial Invoice

Declared value for customs (In US $).

Export license No./Symbol *(if applicable)*

Harmonized Sched. B No. *(if applicable)*

Type of export *If left blank, Permanent is assumed*
- ☐ Permanent
- ☐ Temporary ☐ Repair/Return

Shipper's EIN/SSN

These commodities, technology or software were exported from the United States in accordance with the export administration regulations. Diversion contrary to U.S. law prohibited.

Destination duties/taxes *If left blank recipient pays duties/taxes*
- ☐ Recipient ☐ Shipper ☐ Other . . . *Specify destination approved account number*

4 Pcs/Weight/Size

No. of pieces: 1

Weight *if DHL Express Document packaging is used, enter XD*: 1 lb

Dimensions *in inches*

_____@ x x
_____@ x x
_____@ x x

Pieces length width height

DIMENSIONAL/CHARGED WEIGHT: lb

CODES	CHARGES Services
	Special services
	Insurance
Drop Box/ Exp. Center #	
TOTAL	

TRANSPORT COLLECT STICKER No.

PICKED UP BY

Time

Date 3/5/99

5 Shipper's authorization and signature

I/we agree that DHL's standard terms apply to this shipment and limit DHL's liability for loss or damage to U.S. $ 100. The Warsaw Convention may also apply (see reverse). I/we authorize DHL to complete other documents necessary to export this shipment. I/we understand that insurance is available on request, for an extra charge. I/we agree to pay all charges if the recipient or third party does not pay. I/we understand that DHL DOES NOT TRANSPORT CASH.

Signature (required): M. Fornarotto

Date: 3/5/99

09581064 .100702

THOMSON MULTIMEDIA LICENSING INC.

DAVIDA P. FORNAROTTO
Paralegal/Administrative Assistant
Davida.Fornarotto@corporate.ge.com

Two Independence Way, Princeton, NJ 08540
Mailing Address: PO Box 5312, Princeton, NJ 08543-2023
Phone: 609-734-9597, Fax: 609-734-9700

March 5, 1999 VIA COURIER

Mr. Mehmet Kemal Ozkan
Idealtepe Mah. Aydin Sok.
Serdaroglu Apt 10/14
Maltepe 81580 Istanbul, Turkey

Re: RCA 88914, RCA 89399 and RCA 89400
Forms To Be Signed

Dear Mr. Ozkan:

Thank you so much for your E-mail response concerning your address. Enclosed please find a PCT Power of Attorney form and a PCT Assignment form for each of the above applications, which require your signature so that we can file these cases via the PCT.

Before you sign these forms, please look over the attached copies of the above applications. These are the applications as filed via the PCT.

Please sign and date these forms with your FULL NAME where indicated, as per the post-it notes attached. NO NOTARIZATION IS REQUIRED on these forms. However, on the Assignment forms your signature must be witnessed by two witnesses.

Please change your address directly on the Assignment forms and place your initials next to each change.

I have enclosed a DHL label, as you requested. I hope this helps you in returning the forms to me.

If you have any questions, please do not hesitate to contact me at 609-734-9597. Thank you for your help in this matter.

Very truly yours,

Davida

Ms. Davida Fornarotto
df
Enc.

reminder sent by E-mail 3-24-99

EXHIBIT D

Fornarotto, Davida (CORP, GERLMO)

From: Mehmet Ozkan
Sent: Thursday, March 25, 1999 2:36 AM
To: Fornarotto, Davida (CORP, GERLMO)
Subject: Re: RCA 88914, RCA 89399 and RCA 89400 forms

Ms. Davida Fornarotto,

I did receive the applications and will be sending them to you very soon

regards

Mehmet Ozkan

-----Original Message-----
From: Fornarotto, Davida (CORP, GERLMO) <davida.fornarotto@corporate.ge.com>
To: 'mehmet.ozkan@do.net.tr' <mehmet.ozkan@do.net.tr>
Date: Wednesday, March 24, 1999 8:22 PM
Subject: RCA 88914, RCA 89399 and RCA 89400 forms

>Dear Mr. Ozkan:
>
>This is further to my letter dated March 5, 1999 in which I enclosed forms
>for each of the above applications which required your signature.
>
>Would you please reply by return e-mail as to whether you received the
above
>letter and forms and as to whether you will be able to send them back to me
>immediately.
>
>Thank you for your help in this matter.
>
>
>Ms. Davida Fornarotto

Fornarotto, Davida (CORP, GERLMO)

From: Fornarotto, Davida (CORP, GERLMO)
Sent: Wednesday, March 31, 1999 9:36 AM
To: 'mehmet.ozkan@do.net.tr'
Subject: Forms for RCA 88914, RCA 89399 and RCA 89400

Dear Mr. Ozkan:

I am sorry to bother you again about these forms.

Would you please return these forms as soon as possible as I have a due date to submit them to the Patent Office by April 12, 1999.

Please let me know if you have already sent them or when you will be sending them.

Thank you for your help.

Davida Fornarotto

Fornarotto, Davida (CORP, GERLMO)

From: Mehmet Ozkan
Sent: Monday, April 5, 1999 4:42 AM
To: Fornarotto, Davida (CORP, GERLMO)
Subject: Re: Forms for RCA 88914, RCA 89399 and RCA 89400

Ms. Fornarotto,

Since I could not use the DHL Airwaybill you included from Turkey (they said they needed a different International number), I am sending the documents with someone travelling to US tomorrow, and he will be sending the documents from there.

I hope this will not be a problem for the application dead-line

Regards

Mehmet Ozkan

-----Original Message-----
From: Fornarotto, Davida (CORP, GERLMO) <davida.fornarotto@corporate.ge.com>
To: 'mehmet.ozkan@do.net.tr' <mehmet.ozkan@do.net.tr>
Date: Wednesday, March 31, 1999 5:42 PM
Subject: Forms for RCA 88914, RCA 89399 and RCA 89400

>Dear Mr. Ozkan:
>
>I am sorry to bother you again about these forms.
>
>Would you please return these forms as soon as possible as I have a due date
>to submit them to the Patent Office by April 12, 1999.
>
>Please let me know if you have already sent them or when you will be sending
>them.
>
>Thank you for your help.
>
>Davida Fornarotto

EXHIBIT E

April 6, 2000

Thomson Multimedia
Attention: Davida Fornarotto
2 Independence Way
Princeton, New Jersey 08540
Fax #: 609-734-9700

Re:

Airwaybill:	7786866555
Date Shipped:	November 12, 1999
Shipper:	Thomson Multimedia
Consignee:	Mr. Mehmet Kamal Ozkan
City, State, Zip:	Istanbul
Country:	Turkey

Dear Davida Fornarotto:

In response to your inquiry concerning the above referenced shipment, DHL Worldwide Express has traced this shipment through our shipping cycle and has ascertained the following:

This shipment was undeliverable due to the recipient was unknown at the address listed on the airwaybill. Our DHL office in Turkey could not contact Mr. Ozkan because there was no telephone listed. The shipper requested to have the shipment returned. On November 18, 1999 this shipment was returned under airwaybill number 6045724775.

DHL sincerely regrets any inconvenience that may have resulted with regards to this shipment. We value our relationship with our customers and hope you will allow us to continue providing services to your company.

Sincerely,

Shaniqua Pritchet

Shaniqua Pritchet
Service Inquiry Representative
1-800-225-5345, Ext. 1637

2 of 8

DHL Worldwide Express
1900 W. University Dr.
Tempe, AZ 85281
(602) 921-8831

EXHIBIT F

mehmet.ozkan@kanald.com.tr
Forms to be Signed

ovember 22, 1999

ar Mr. Ozkan:

ave some forms that require your signature.

uld you please advise me, BY RETURN E-MAIL, whether the following address is your correct, present address and if I mail the forms to you there.

aklar Caddesi No.: 17
cidiyekoy 80290
nbul, Turkey

e-mail is: fornarottod@tce.com

ank you for your help.

. Davida Fornarotto

4

EXHIBIT G

Lagoni Bill
RE: Mehmet Ozkan

No. I sent an e-mail to him on November 22nd and have not heard from him.

Thank you for checking on me. I was going to contact you today to see what I can do now. I don't want to send the forms o him unless I hear from him first.

The date that the cases have to be filed by is January 10, 2000. I am sending the cases out now and the forms will have o follow.

Thanks

Davida

—Original Message—
From: Lagoni Bill
Sent: Wednesday, December 01, 1999 8:51 AM
To: Fornarotto Davida (Princeton)
Subject: RE: Mehmet Ozkan

Were you successful?

—Original Message—
From: Lagoni Bill
Sent: Monday, November 22, 1999 3:37 PM
To: Fornarotto Davida (Princeton)
Subject: FW: Mehmet Ozkan

Davida:
This e-mail worked successfully shortly after the first earthquake, so hopefully is still good. Note the attached includes his e-mail address, business address and business phone.

WAL

—Original Message—
From: Hall Susan (Tech Library Indy)
Sent: Monday, November 22, 1999 3:31 PM
To: Lagoni Bill
Subject: FW: Mehmet Ozkan

<< File: Mehmet Ozkan.vcf >>

3

Mehmet Ozkan
Ozkan
Mehmet

Business Address: Ortaklar Caddesi No: 17
Mecidiyekoy 80290
Istanbul-Turkey

Business: (+90-212) 215 51 11
Business 2: (+90-212) 215 51 63
Business Fax: (+90-212) 215 51 72

E-mail: mehmet.ozkan@kanald.com.tr

EXHIBIT H

Lagoni Bill
Mehmet Ozkan

)ecember 3, 1999

still have not heard from Mr. Ozkan. What can I do now?

avida

5

Lagoni Bill
Saturday, December 04, 1999 1:37 PM
Fomarotto Davida (Princeton)
RE: Mehmet Ozkan

n't know. I sent a message to the e-mail address I gave you and marked it for confirmation of receipt and confirmation eing read, and got no response from either. I don't have any other ideas.

riginal Message—
Fomarotto Davida (Princeton)
Friday, December 03, 1999 4:57 PM
Lagoni Bill
Mehmet Ozkan

ember 3, 1999

have not heard from Mr. Ozkan. What can I do now?

da

6

EXHIBIT I

Lagoni Bill;
Mehmet Kemal Ozkan

ubject:

ecember 7, 1999

irther to your response to my e-mail, I still have not heard from Mr. Ozkan.

poke to Mr. Krittman, and we will have to file a Petition under 37C.F.R.1.47(a) in the US (and any other countries that quire forms to be signed) stating the process that we used to try to find Mr. Ozkan.

ank you for your help.

avida

7

[redacted]

[redacted]

arotto Davida (Princeton)

Lagoni Bill
Tuesday, December 07, 1999 4:07 PM
Fornarotto Davida (Princeton)
ct: RE: Mehmet Kemal Ozkan

:s for the information about what is involved. I twice sent e-mails to the address I gave you and marked them for mation of delivery as well as being read; they have repeatedly been returned as undeliverable.

ginal Message—
Fornarotto Davida (Princeton)
Tuesday, December 07, 1999 3:29 PM
Lagoni Bill
:t: Mehmet Kemal Ozkan

mber 7, 1999

er to your response to my e-mail, I still have not heard from Mr. Ozkan.

ce to Mr. Krittman, and we will have to file a Petition under 37C.F.R.1.47(a) in the US (and any other countries that re forms to be signed) stating the process that we used to try to find Mr. Ozkan.

k you for your help.

da

cannot locate

7 + 8

EXHIBIT J

Fornarotto Davida (Princeton)

To: mehmet.ozkan@do.net.tr
Subject: RCA 88914, 89399 and 89400 Forms to be signed

July 21, 2000

Dear Mr. Ozkan:

This is to advise you that we have some forms for the above applications that require your signature.

Would you please contact me by return e-mail and let me know your present home address, phone number, and any other information concerning where you are presently located.

We have been trying to locate you since April 1999.

Thank you for your help.

Davida Fornarotto
Thomson multimedia Licensing Inc.
2 Independence Way
Princeton, New Jersey 08540 USA

Phone: 609-734-9597